

AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A shaped particle for use in treating a bone deficiency wherein said particle is shaped for use in an array of particles interlocked with one another, comprising:

a center portion; and

between four and six tapered extremities projecting from said center portion wherein said projections provide for interstitial spaces between adjacent extremities, each extremity having a base attached at said center portion, an opposite point, a length, and a circular transverse cross-sectional configuration, wherein said interstitial spaces of one said particle will accept at least one extremity of an adjacent said particle to facilitate interlocking of adjacent particles in said array of shaped particles, wherein said array of shaped particles provides for treating a bone deficiency.

2. (Original) The particle of Claim 1 wherein at least three of said extremities lie in a plane.

3. (Original) The particle of Claim 1 wherein said particle has six extremities.

4. (Original) The particle of Claim 1 wherein said particle is comprised of a material selected from the group consisting of ceramic, bioactive glass, polymer, polymer/ceramic composite, and polymer/glass composite.

5. (Previously Presented) The particle of Claim 4 wherein said ceramic is comprised of a calcium salt.

6. (Original) The particle of Claim 5 wherein said calcium salt is selected from the group consisting of calcium sulfate, calcium carbonate, calcium phosphate and calcium tartarate.

7. (Original) The particle of Claim 6 wherein said particle is comprised of calcium sulfate.

8. (Original) The particle of Claim 7 wherein said calcium sulfate is in the form of gypsum.

9. (Original) The particle of Claim 4 wherein said particle is comprised of bioactive glass.

10. (Original) The particle of Claim 4 wherein said particle is comprised of a polymer.

11. (Original) The particle of Claim 10 wherein said polymer is selected from the group consisting of polypropylene, polylactic acid, polyglycolic acid and polycaprolactone.

12. (Original) The particle of Claim 4 wherein said particle is comprised of a polymer/ceramic composite.

13. (Original) The particle of Claim 4 wherein said particle is comprised of a polymer/glass composite.

14. (Original) The particle of Claim 1 wherein said particle has a diameter of about 3-10 millimeters.

15. (Original) The particle of Claim 1 wherein said particle has a diameter of about 4-8 millimeters.

16. (Original) The particle of Claim 1 wherein said particle has a diameter of about 6 millimeters.

20. (Original) The particle of Claim 1 wherein said treatment of a bone deficiency is selected from the group consisting of augmentation of bone, repair of bone, replacement of bone, improvement of bone, strengthening of bone and healing of bone.

21. (Previously Presented) The particle of Claim 20 wherein said bone deficiency is selected from the group consisting of a fracture, break, loss of bone, weak bone, brittle bone, hole in bone, void in bone, disease of bone and degeneration of bone.

22. (Previously Presented) The particle of Claim 21 wherein said disease is selected from the group consisting of osteoporosis, Paget's disease, fibrous dysplasia, osteodystrophia, periodontal disease, osteopenia, osteopetrosis, primary hyperparathyroidism, hypophosphatasia, fibrous dysplasia, osteogenesis imperfecta, myeloma bone disease and bone malignancy.

26. (Original) An array of shaped particles wherein said array comprises a plurality of shaped particles, said shaped particles comprising:

a center portion; and

at least four tapered extremities projecting from said center portion wherein said projections provide for interstitial spaces between adjacent extremities, each extremity having a base attached at said center portion, an opposite point, a length, and a

circular transverse cross-sectional configuration, wherein said interstitial spaces of one said particle will accept at least one extremity of an adjacent said particle to facilitate interlocking of adjacent particles in said array of shaped particles, wherein said array of shaped particles provides for treating a bone deficiency.

64. (Previously Presented) The particle of Claim 1, wherein the particle is ceramic.

65. (Previously Presented) The particle of Claim 1, wherein said particle is comprised of a resorbable material.

67. (Previously Presented) The array of Claim 26 wherein said plurality of shaped particles comprises a mixture of particles comprised of different materials.

68. (Previously Presented) The array of Claim 67 wherein said different materials are selected from the group consisting of ceramic, calcium salt, bioactive glass, polymer, polymer/ceramic composite, and polymer/glass composite.

69. (Previously Presented) The array of Claim 26 wherein said interstitial spaces of one said particle will accept only one extremity of an adjacent said particle to facilitate interlocking of adjacent particles in said array of shaped particles, wherein said array of shaped particles provides for treating a bone deficiency.

70. (Currently Amended) The array of Claim [70] 26 wherein said interlocking of adjacent particles in said array provides adequate porosity to allow ingrowth from a host bone.

71. (Previously Presented) The array of Claim 70 wherein said porosity is between about 40% and about 80%.

72. (Currently Amended) The array of Claim [26] 70 wherein said porosity is between about 60% and about 80%.

73. (Previously Presented) A shaped particle for use in treating a bone deficiency wherein said particle is shaped for use in an array of particles interlocked with one another, comprising:

a center portion; and

at least four tapered extremities projecting from said center portion wherein said projections provide for interstitial spaces between adjacent extremities, each extremity having a base attached at said center portion, an opposite point, a length, and a circular transverse cross-sectional configuration, wherein said interstitial spaces of one said particle will accept at least one extremity of an adjacent said particle to facilitate interlocking of adjacent particles in said array of shaped particles, wherein the particle has bilateral symmetry in at least one plane of said particle.

74. (Previously Presented) A shaped particle for use in treating a bone deficiency wherein said particle is shaped for use in an array of particles interlocked with one another, comprising:

a center portion; and

at least four tapered extremities projecting from said center portion wherein said projections provide for interstitial spaces between adjacent extremities, each extremity having a base attached at said center portion, an opposite point, a length, and a circular transverse cross-sectional configuration, wherein said interstitial spaces of one said particle will accept at least one extremity of an adjacent said particle to facilitate interlocking of adjacent particles in said array of shaped particles, wherein the axes of any two adjacent arms are at right angles from one another.

75. (Previously Presented) A shaped particle for use in treating a bone deficiency wherein said particle is shaped for use in an array of particles interlocked with one another, comprising:

a center portion; and

at least four tapered extremities projecting from said center portion wherein said projections provide for interstitial spaces between adjacent extremities, each extremity having a base attached at said center portion, an opposite point, a length, and a circular transverse cross-sectional configuration, wherein said interstitial spaces of one said particle will accept at least one extremity of an adjacent said particle to facilitate interlocking of adjacent particles in said array of shaped particles, wherein the extremities are of the same shape and size.

76. (Previously Presented) A shaped particle for use in treating a bone deficiency wherein said particle is shaped for use in an array of particles interlocked with one another, comprising:

a center portion; and

at least four tapered extremities projecting from said center portion wherein said projections provide for interstitial spaces between adjacent extremities, each extremity having a base attached at said center portion, an opposite point, a length, and a circular transverse cross-sectional configuration, wherein said interstitial spaces of one said particle will accept only one extremity of an adjacent said particle to facilitate interlocking of adjacent particles in said array of shaped particles.

77. (Previously Presented) A shaped particle for use in treating a bone deficiency wherein said particle is shaped for use in an array of particles interlocked with one another, comprising:

a center portion; and

at least four tapered extremities projecting from said center portion wherein said projections provide for interstitial spaces between adjacent extremities, each extremity having a base attached at said center portion, an opposite point, a length, and a circular transverse cross-sectional configuration, wherein the angles between any adjacent extremities in the particle are approximately equal.

78. (Previously Presented) The particle of Claim 1, wherein said particle comprises exactly six extremities.

79. (New) A shaped particle for use in treating a bone deficiency wherein said particle is shaped for use in an array of particles interlocked with one another, comprising:

a center portion; and

between four and six tapered extremities projecting from said center portion wherein said projections provide for interstitial spaces between adjacent extremities,

each extremity having a base attached at said center portion, an opposite point, a length, and a circular transverse cross-sectional configuration, wherein said interstitial spaces of one said particle will accept at least one extremity of an adjacent said particle to facilitate interlocking of adjacent particles in said array of shaped particles, wherein more than two extremities lie in one plane, and wherein said array of shaped particles provides for treating a bone deficiency.

80. (New) A shaped particle for use in treating a bone deficiency wherein said particle is shaped for use in an array of particles interlocked with one another, comprising:

a center portion; and

between four and six tapered extremities projecting from said center portion wherein said projections provide for interstitial spaces between adjacent extremities, each extremity having a base attached at said center portion, an opposite point, a length, and a circular transverse cross-sectional configuration, wherein said interstitial spaces of one said particle will accept at least one extremity of an adjacent said particle to facilitate interlocking of adjacent particles in said array of shaped particles, wherein said particle comprises more than three planes of bilateral symmetry, and wherein said array of shaped particles provides for treating a bone deficiency.